

REPORT ON
ACTUARIAL VALUATION
MINNESOTA STATE RETIREMENT SYSTEM

JUNE 30, 1978

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January 23, 1979

Board of Directors
Minnesota State Retirement System
529 Jackson Street
St. Paul, Minnesota 55101

Gentlemen:

We are pleased to transmit herewith our report on the actuarial valuation of your Retirement System made as of June 30, 1978.

Pursuant to the Contract under which this valuation was authorized, the actuarial valuation was carried out on the basis of a 5% interest rate assumption, a 3-1/2% salary scale, and on the basis of certain other specified actuarial assumptions. Also, in accordance with the above noted contract, we utilized the entry age normal cost method of funding to determine the unfunded supplemental present value (unfunded accrued liability) of the System.

We hereby certify that the actuarial valuation of the Minnesota State Retirement System made as of June 30, 1978 was carried out on the basis of accepted actuarial methods and procedures and in accordance with the provisions of Minnesota Statutes, Chapter 356. The results of that valuation indicate that the contributions required from the employees and from the State under Minnesota Statutes, Chapter 352, are adequate to provide the benefits that will be paid from the System.

We look forward to the opportunity of discussing this report with you at your convenience.

Very truly yours,

TOWERS, PERRIN, FORSTER & CROSBY

David G. Adams *H. M. Church*
David G. Adams Harry M. Church

HMC:msm

REPORT ON ACTUARIAL VALUATION OF THE
MINNESOTA STATE RETIREMENT SYSTEM
AS OF JUNE 30, 1978

SECTION I
INTRODUCTION

In accordance with the Contract between the State of Minnesota and this firm, we have completed the actuarial valuation of the Minnesota State Retirement System as of June 30, 1978 as it was constituted as of that date.

The Executive Director of the System furnished us with detailed employee information on all active members, inactive members and retired members of the System as of June 30, 1978. The Executive Director and his staff are to be complimented on the accuracy and completeness of the aforementioned data.

The Executive Director also furnished us with a Financial Report setting forth the assets and liabilities of the Fund as of June 30, 1978. No physical audit of these assets was made by us and our calculations are based upon the Financial Report as submitted.

The Society of Actuaries recommended that the term "Unfunded Supplemental Present Value" replace the often used term "Unfunded Accrued Liability". We are in full agreement with this recommendation and have used the term "Unfunded Supplemental Present Value" throughout this report.

The following Section II sets forth the results of the actuarial valuation and Section III contains the exhibits required by Chapter 356 of the Statutes.

The schedules following Section III show the actuarial assumptions used in the current valuation which were developed during the course of the actuarial investigation carried out as of June 30, 1975. It is to be noted that our calculations do not require assumptions as to the "average entry age" or "average retirement age".

A brief summary of the major provisions of the plan is attached at the end of the report.

SECTION II
RESULTS OF ACTUARIAL VALUATION

The Contract under which this valuation was authorized specifies that the actuarial valuation be carried out on the basis of a 5% interest rate assumption, a 3-1/2% salary scale, the 1951 Group Annuity Mortality Table with ages set back one year for Male retirees and set back two years for Female retirees, and upon other appropriate actuarial assumptions. We were also instructed to carry out the actuarial valuation on the basis of an entry age normal cost method of funding.

The current valuation was carried out in accordance with the stipulations contained in the aforementioned Contract and on the basis of the other actuarial assumptions developed by the June 30, 1975 experience study. It is to be noted that we reflected the \$417.60 annual salary increase that became effective in July, 1978.

The entry age normal cost method of funding requires the determination of the level contribution rate which, if contributed on behalf of all new employees from the dates of employment to the dates of separation from service, will be adequate to provide all of their benefits. Under this funding method, the unfunded supplemental present value is taken as the total liability of the System for benefits earned in the past as well as those earnable in the future, less the assets on hand, less the present value of future employee contributions and less the present value of future State entry age normal cost contributions.

In order to develop the entry age normal cost contribution rate for new Correctional Employees, we carried out a complete valuation of all active members based on their ages at entry and upon their estimated salaries at time of entry. The results of these calculations indicate that the total entry age normal cost rate for Correctional Employees amounts to 11.02% of salary. Correctional Employees are required by law to contribute 6% and, accordingly, the State's share of the entry age normal cost contribution rate for Correctional Employees amounts to 5.02%.

For General Employees, we also carried out a complete valuation of all active members based on their ages at entry and upon their estimated salaries at time of entry. Based on this valuation, we calculated the total entry age normal cost rate to be 7.06%. General Employees are required by law to contribute 4% and, accordingly, the State's share of the entry age normal cost contribution for General Employees amounts to 3.06%.

The law requires that the State make the following contributions to the fund:

1. A "matching" contribution equal to 4% of General Employees' salaries and 9% of Correctional Employees' salaries.
2. An "additional" contribution equal to 2% of General Employees' salaries and 5% of Correctional Employees' salaries.

We have been advised that it is the intent of the Minnesota Legislature to pay the "additional" contributions referred to above for a limited time only.

The current valuation was conducted without reference to the 1978 Amendment which limits credit to, in general, forty years. The small gains that will arise in the future as persons retire subject to this limitation will be reflected as they occur.

The 1978 amendment which changes the 6% per year reduction for early retirement to "actuarial equivalence" will be reflected in the valuations after it becomes effective April 1, 1979.

We assigned the State Contribution Reserve, after adjustment to the MAFB Fund, to Correctional and General Employees in proportion to their accumulated contributions as follows:

	<u>State Contribution Reserve</u>
General Employees	\$151,989,754
Correctional Employees	<u>4,968,123</u>
Total	\$156,957,877

The Accounting Balance Sheet shown on the following page was furnished by the Executive Director.

The Actuarial Balance Sheet shown on the page following the Accounting Balance Sheet summarizes the results of the valuation. In the current valuation we have made provision for administrative expenses amounting to .14% of salaries.

MINNESOTA STATE RETIREMENT SYSTEM

ACCOUNTING BALANCE SHEET

AS OF JUNE 30, 1978

ASSETS

Cash in State Treasury	(\$ 24,116.01)
Cash in Bank	200.00
Short Term Investments (at Cost)	10,420,140.42
Accounts Receivable:	
(a) Accrued employee contributions	597,028.78
(b) Accrued employer contributions	921,690.87
(c) Employee buy-backs	196,521.06
(d) Investment maturities and sales	-0-
(e) Due from other plans	63,254.42
(f) Other	2,852.27
(g) Due from MAFB Fund	.00
Accrued Interest on Investments	2,402,605.80
Dividends Declared and Payable, but not yet received	484,475.59
Investment in Debt Securities at Amortized Cost	100,874,950.50
Investment in Mortgages at Amortized Cost	20,482,100.36
Investment in Equities at Cost (1)	117,990,616.22
Recognized unrealized appreciation in equities	.00
Equipment at Depreciated Cost	14,263.16
Deferred Yield Adjustment Account	4,186,098.78
Participation in the MAFB Fund	<u>141,687,419.09</u>
Total Assets	<u>\$400,300,101.31</u>

(1) Market Value, June 30, 1977 \$116,210,538

MINNESOTA STATE RETIREMENT SYSTEM

ACCOUNTING BALANCE SHEET

AS OF JUNE 30, 1978

LIABILITIES AND RESERVES

Liabilities:

Accounts Payable:

(a) Security Purchases	\$ 345,018.09
(b) Annuities	1,072.92
(c) Annuitant Deposits	11,806.23
(d) Accrued Expenses	91,196.19
(e) Overpaid Dividends	1,785.00
(f) Transfer to Unclassified Retirement	181,430.29
(g) Due MAFB Fund	491,245.00
Suspense Item: Unredeemed 6 Year Old Warrants	<u>6,904.03</u>
Total Liabilities	<u>\$ 1,130,457.75</u>

Reserves:

Minnesota Adjustable Fixed Benefit Fund

Actuarial Reserve Requirement	\$151,273,385.09
Annuity Stabilization Reserve	(9,585,966.00)
Reserve for Benefits	<u>\$141,687,419.09</u>
Survivor Benefit Reserve	245,506.00
Employee Contribution Reserve	100,278,841.73
State Contribution Reserve	<u>156,957,876.74</u>
Total Reserves	<u>\$399,169,643.56</u>
Total Liabilities and Reserves	<u><u>\$400,300,101.31</u></u>

MINNESOTA STATE RETIREMENT SYSTEM

ACTUARIAL BALANCE SHEET
AS OF JUNE 30, 1978

ASSETS

1. Assets on Hand from Accounting Balance Sheet:		
a) Participation in MAFB Fund	\$141,687,419	
b) All other assets	<u>258,612,682</u>	\$400,300,101
2. Present Value of Employee's Future Contributions		190,476,699
3. Present Value of State Future Contributions Applicable to:		
a) Entry Age Normal Cost	\$146,180,376	
b) Unfunded Supplemental Present Value (Balance of "Matching" Contribution less .14% for Operating Expense)	40,954,536	
c) Unfunded Supplemental Present Value (Portion to be funded by "Additional" Contribution)	<u>145,816,962</u>	<u>332,951,874</u>
4. TOTAL ASSETS		<u>\$923,728,674</u>

LIABILITIES

5. Current Liabilities from Accounting Balance Sheet		\$ 1,130,457
6. Present Value of Earned and Earnable Benefits Payable to Presently Active Members:		
a) Retirement Benefits	\$616,355,324	
b) Disability Benefits	35,510,246	
c) Refundments due to death or withdrawal	113,085,784	
d) Surviving Spouse Benefits	<u>8,137,869</u>	773,089,223
7. Present Value of Benefits for Deferred Annuitants:		
a) Retirement Benefits	\$ 6,736,584	
b) Refundments due to death	<u>225,832</u>	6,962,416
8. Present Value of Refundments to former members without vested rights		613,653
9. Present Value of Survivor Benefits		245,506
10. Present Value of Benefits Payable from MAFB Fund		151,273,385
11. MAFBF Annuity Stabilization Account		<u>(9,585,966)</u>
12. TOTAL LIABILITIES		<u>\$923,728,674</u>

The Actuarial Balance Sheet is a convenient device to present the results of an actuarial valuation. The following comments are intended to assist you in your understanding of the items contained in the Actuarial Balance Sheet.

Item 1 shows the assets on hand and was taken directly from the Accounting Balance Sheet.

Item 2 shows the present value of members' future contributions required by law.

Item 3 shows the present value of the State's future contributions to the System. We have divided the present value applicable to the State's contributions as follows:

Item 3(a) The portion attributable to the State's share of the total entry age normal cost contribution of 3.06% of General Employees' salaries and 5.02% of Correctional Employees' salaries.

Item 3(b) The portion attributable to the balance of the State's "matching" contribution less .14% which is allocated for operating expenses. This amounts to .80% of General Employees' salaries and 3.84% of Correctional Employees' salaries.

Item 3(c) The portion attributable to the State's "additional" contribution. The following table shows the required information for Correctional Employees and for General Employees.

	<u>Correctional Employees</u>	<u>General Employees</u>	<u>Total</u>
1. Annualized Salaries July 1, 1978	\$14,828,207	\$554,473,178	\$569,301,385
2. State "Additional" contribution rate	5%	2%	
3. Annual State "Additional" contribution	741,410	11,089,463	11,830,873
4. Item 3(c) Actuarial Balance Sheet	4,094,298	141,722,664	145,816,962
5. Years (to nearest year) required to amortize Item 3(c) of Actuarial Balance Sheet by "Addi- tional" State Contribu- tions which increase in accordance with salary scale	6	14	14
6. First year annual con- tribution with subsequent salary scale increases required to amortize Item 3(c) of Actuarial Balance Sheet over Period Ending June 30, 1997	247,404	8,563,794	8,811,198
7. Total Unfunded Supple- mental Present Value (Item 3(b) plus Item 3(c) of Actuarial Balance Sheet)	8,253,129	178,518,369	186,771,498

Item 5 shows the current liabilities and was taken directly from the Accounting Balance Sheet.

Item 6 shows the actuarially computed present value of all benefits earned to June 30, 1978 and earnable after that date that will be paid from the System to presently active members.

Item 7 shows the actuarially computed present value of all benefits payable from the System to members who have terminated service with vested benefits.

Item 8 shows the actuarially computed present value of refundments that will be paid from the System to members who have terminated service without vested benefits.

The total of \$151,273,385 shown for Item⁹10 represents the value of benefits payable from the MAFB to MSRS retirees.

Item 11 shows the difference between the MAFB Fund participation and the present value of benefits payable from the MAFB Fund and after adjustment for the 1978 mortality loss. The following schedule shows the determination:

1.	MAFB Fund Participation June 30, 1978	\$141,198,524
2.	Transfer to MAFB Fund from MSRS Fund for 1978 mortality loss	<u>488,895</u>
3.	MAFB Fund Participation after Transfer (Item 1 + Item 2)	141,687,419
4.	Present Value of Benefits Payable from MAFB Fund	151,273,385
5.	MAFB Annuity Stabilization Account (Item 3 - Item 4)	(9,585,966)

CONCLUSIONS

In a retirement system such as yours where both the benefits and contributions are specified in the Retirement Law, the major purpose of an actuarial valuation is to determine whether or not the prescribed contributions are adequate to provide the benefits that will ultimately be paid under the system. The results of the current valuation show that the benefits to be provided under the System can be financed by the members' contributions and the State's "matching" contributions plus the State's "additional" contribution for approximately fourteen years.

Based on the actuarial assumptions utilized for the current valuation, we estimate the present value of benefits earned to June 30, 1978 by presently active and retired persons to be \$465,817,822. Applicable assets, including \$9,585,966 due from the MAFB Fund, amount to \$408,755,610. Thus, as of June 30, 1978, 87.8% of the liability for benefits earned to date have been funded. This corresponds to 87.8% as of June 30, 1977.

SECTION III
REQUIRED EXHIBITS

Minnesota Statutes, Chapter 356, requires, in Section 356.20, Subdivision 4(1), that the actuary of the System prepare an exhibit setting forth certain specified information with regard to the System as of the valuation date, including "Reserves Required" under the System. In an earlier conference with representatives of the State's Employee Retirement System's Interim Commission, we were advised that "Reserve Required", as contemplated in the aforementioned statute, may be defined as the actuarially computed present value applicable to a specified benefit reduced by the actuarially computed present value of any portion of the total entry age normal cost contribution under the System which is applicable to the specified benefit.

The exhibit required by Section 356.20, Subdivision 4(1) of Minnesota Statutes, Chapter 356, is presented on the following pages of this Section III and we hereby certify that the Reserves Required set forth therein have been computed in accordance with the Entry Age Normal Cost (level Normal Cost) basis in the manner outlined in the definition referred to above.

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES CHAPTER 356,
SECTION 356.20, SUBDIVISION 4(1)
AS OF JUNE 30, 1978

ASSETS AND UNFUNDED SUPPLEMENTAL PRESENT VALUE

ASSETS

1. Cash in State Treasury	(\$ 24,116.01)
2. Cash in Bank (Imprest Cash)	200.00
3. Short Term Investments (at Cost	10,420,140.42
4. Accounts Receivable:	
a) Accrued Employee Contributions	597,028.78
b) Accrued Employer Contributions	921,690.87
c) Employee Buybacks	196,521.06
d) Due from Other Plans	63,254.42
e) Other	2,852.27
f) Due from MAFB Fund	.00
5. Accrued Interest on Investments	2,402,605.80
6. Dividends Declared and Payable, but not yet Received	484,475.59
7. Investment in Debt Securities at Amortized Cost	100,874,950.50
8. Investment in G.N.M.A.'s at Amortized Cost	20,482,100.36
9. Investment in Equities at Cost	117,990,616.22
10. Recognized Unrealized Appreciation in Equities	.00
11. Equipment at Depreciated Cost	14,263.16
12. Deferred Yield Adjustment Account	4,186,098.78
13. Participation in the MAFB Fund	141,687,419.09
14. Total Assets	<u>\$400,300,101.31</u>

UNFUNDED SUPPLEMENTAL PRESENT VALUE

15. Unfunded Supplemental Present Value to be funded by portion of State's "Matching Contribution" in excess of State's share of entry age normal cost contribution and Operating Expenses	\$ 40,954,536.00
16. Unfunded Supplemental Present Value to be funded by State's "Additional" contribution	<u>145,816,962.44</u>
17. Total Unfunded Supplemental Present Value	<u>186,771,498.44</u>
18. TOTAL ASSETS AND UNFUNDED SUPPLEMENTAL PRESENT VALUE	<u>\$587,071,599.75</u>

CURRENT LIABILITIES AND RESERVES REQUIRED

LIABILITIES

19. Accounts Payable:	
a) Security Purchases	\$ 345,018.09
b) Annuities	1,072.92
c) Annuitant Deposits	11,806.23
d) Accrued Expenses	91,196.19
e) Overpaid Dividends	1,785.00
f) Transfer to Unclassified Retirement	181,430.29
g) Due MAFB Fund	491,245.00
20. Suspense Item: Unredeemed 6 year old Warrants	6,904.03
21. MAFBF Annuity Stabilization Account	(9,585,966.00)
22. Total Liabilities	<u>\$ (8,455,508.25)</u>

RESERVES REQUIRED

23. Total Reserves Required per Attached Schedule	<u>\$595,527,108.00</u>
24. Total Current Liabilities and Reserves Required	<u>\$587,071,599.75</u>

NOTE: Accumulated contributions, without interest, of members not yet retired amounted to \$100,278,841.73 as of June 30, 1978.

MINNESOTA STATE RETIREMENT SYSTEM
DETERMINATION OF RESERVES REQUIRED
AS OF
JUNE 30, 1978

	(1)	(2)	(3)
	Present Value of Benefits	Present value of Applicable Portion of Normal Cost Contribution	Reserves Required (1) - (2)
<u>Benefits For:</u>			
1. Active Members:			
(a) Retirement Benefits	\$616,355,324	\$218,128,992	\$398,226,332
(b) Disability Benefits	35,510,246	22,272,368	13,237,878
(c) Refundments due to death or withdrawal	113,085,784	93,496,037	19,589,747
(d) Surviving Spouse Benefits	8,137,869	2,759,678	5,378,191
2. Deferred Annuitants	6,962,416	--	6,962,416
3. Former Members Without Vested Rights	613,653	--	613,653
4. Survivors	245,506	--	245,506
5. Benefits Payable from MAFB Fund	<u>151,273,385</u>	<u>--</u>	<u>151,273,385</u>
6. Total	\$932,184,183	\$336,657,075	\$595,527,108

Minnesota Statutes, Chapter 356, requires, in Section 356.20, Subdivision 4(2) and (3), that there be submitted annually an analysis of the System's income and deductions from income with increases in total reserves required being specifically referred to as a deduction from income. The exhibit required by Section 356.20, Subdivision 4(2) and (3) is presented on the following page of this Section IV. Items of income and deductions from income with the exception of increases in total reserves required were taken directly from statements prepared by the Executive Director.

Inasmuch as any excess of "income" over "deductions from income" must be equal to the reduction in the Unfunded Supplemental Present Value System over the period covered by the analysis, we have confirmed that fact in Item 16 of the exhibit.

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES CHAPTER 356
SECTION 356.20, SUBDIVISION 4(2) AND (3)
FISCAL YEAR ENDING JUNE 30, 1978

ANALYSIS OF INCOME AND DEDUCTIONS FROM INCOME

INCOME

1. <u>From Employees</u>	
Employee contributions	\$ 20,648,216.89
Employee accrued contributions receivable	597,028.78
Employee contributions, accounts receivable	63,843.28
2. <u>From Employers</u>	
Employers contributions	21,109,903.65
Employer additional contributions	10,603,330.37
Employer accrued contributions receivable	921,690.87
3. <u>From Investments</u>	
Interest on securities	8,849,417.25
Dividends on corporate stock	5,114,785.79
Recognized unrealized appreciation in stock	(289,409.37)
Gain on sale of securities	537,109.35
Interest on back payments by employees	176,940.24
4. <u>From MAFB Fund Participation</u>	
Participation in MAFB Fund income	7,923,505.14
5. <u>Other Revenues</u>	
Miscellaneous	1,402.50
6. TOTAL INCOME	<u>\$ 76,257,764.74</u>

DEDUCTIONS FROM INCOME

7. Increase in MAFBF Annuity Stabilization Account		\$ 956,118.00
8. <u>Benefits</u>		
Service retirement annuities		15,908,384.62
Disability retirement benefits		746,625.16
Survivor benefits (spouses)		34,060.60
9. <u>Refundments (Employee Contributions)</u>		
Left service		3,895,069.82
Employee deaths and annuitant deaths		303,916.11
Erroneous deductions		38,592.22
Interest on Refundments		169,575.23
10. <u>Transfer to Unclassified Employee Retirement</u>		2,095,195.45
11. <u>Operating Expenses</u>		910,925.69
12. <u>Prior Year Adjustments</u>		0
13. <u>Increase in Total Reserves Required</u>		
Reserves Required 6-30-77	\$521,158,855.00	
Reserves Required 6-30-78	<u>595,527,108.00</u>	<u>74,368,253.00</u>
14. TOTAL DEDUCTIONS FROM INCOME		<u>99,426,715.90</u>
15. EXCESS OF INCOME OVER DEDUCTIONS FROM INCOME		(23,168,951.16)
16. REDUCTION IN UNFUNDED SUPPLEMENTAL PRESENT VALUE:		
Unfunded Supplemental Present Value 6-30-77	\$163,602,547.28	
Unfunded Supplemental Present Value 6-30-78	<u>186,771,498.44</u>	<u>\$(23,168,951.16)</u>

Minnesota Statutes, Chapter 356, requires, in Section 356.20, Subdivision 4(4), that there be submitted annually an analysis of changes in the membership of the System. Section 356.215. Subdivisions 4 and 5, requires information with respect to the annual payroll and annual annuities of the members of the System as well as certain information with respect to average ages, The exhibit required by Section 356.20, Subdivision 4 and Section 356.215, Subdivisions 4 and 5 is presented on the following pages of this Section IV. All of the information was taken directly from an exhibit prepared by the Executive Director.

MINNESOTA STATE RETIREMENT SYSTEM
GENERAL PLAN
COVERED EMPLOYEE STATEMENT
FISCAL YEAR 1978
As Required by Minnesota Statutes, Chapter 356

	<u>Number</u>	<u>Annualized Payroll</u>
Active at July 1, 1977	40,462	\$470,814,459.28
New Entrants*	<u>9,762</u>	72,851,018.66
Total	50,224	
Less Separations from Active Service:		
Refund of Contributions*	5,636	38,701,165.32
Separation with a Vested Right to a Deferred Annuity	76	598,260.86
Separation with Neither Refundment Nor Right to a Deferred Annuity	966	5,340,429.08
Disability	65	754,788.55
Death*	78	1,025,693.81
Service Retirement	562	7,079,528.35
Death While Eligible Annuity	<u>6</u>	114,728.00
Total Separations	7,389	
Net Transfers To and From Other Plans	63	
Active at June 30, 1978	42,772	\$536,593,823.37

AVERAGE ENTRY AGE OF NEW EMPLOYEES

<u>For the Fiscal Year Ending</u>	<u>Male</u>	<u>Female</u>	<u>Average of Total</u>
6/30/74	29 yrs. 10 mos.	27 yrs. 10 mos.	28 yrs. 6 mos.
6/30/75	30 yrs. 2 mos.	28 yrs. 1 mo.	28 yrs. 10 mos.
6/30/76	30 yrs. 0 mo.	28 yrs. 5 mo.	29 yrs. 0 mos.
6/30/77	29 yrs. 7 mos.	28 yrs. 7 mos.	29 yrs. 3 mo.
6/30/78	30 yrs 9 mos.	29 yrs. 1 mos.	29 yrs. 6 mo.

Average age at entry in State service for all active employees at 6/30/78

Average Male	29.6 yrs.
Average Female	28.2 yrs.
Total Average	28.9 yrs.

*Includes new and separated same year.

MINNESOTA STATE RETIREMENT SYSTEM
GENERAL PLAN
ANNUITANT STATEMENT AT JUNE 30, 1977
As Required by Minnesota Statutes, Chapter 356

	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
(1) SERVICE RETIREMENT ANNUITANTS*		
Receiving at June 30, 1977	6,836	\$13,638,376.92
New	624	1,523,900.04
	7,460	15,162,276.96
Deaths	266	480,058.08
	7,194	14,698,218.88
Adjustments-Net Result	4	480,100.76
Receiving at June 30, 1978	7,198	15,178,319.64
(2) DISABLED EMPLOYEES		
Receiving at June 30, 1977	401	640,956.60
New	70	132,412.20
	471	773,368.80
Deaths	31	54,056.28
	440	719,312.52
Disability Rescinded	1	3,297.60
	439	716,014.92
Adjustments-Net Result	3	10,270.56
Receiving at June 30, 1978	436	726,285.48
(3) WIDOWS RECEIVING AN ANNUITY OR SURVIVOR BENEFIT		
A. Beneficiaries Receiving an Optional or Reversionary Annuity		
Receiving at June 30, 1977	248	353,060.88
New	28	49,568.04
	276	402,628.92
Deaths	10	16,937.64
	266	385,691.28
Adjustments-Net Results	0	13,049.88
Receiving at June 30, 1978	266	398,741.16
B. Spouses Receiving a Survivor Benefit		
Receiving at June 30, 1977	24	29,444.40
Deaths	1	1,060.56
	23	28,383.84
Adjustments-Net Result	0	1,135.68
Receiving at June 30, 1978	23	29,519.52
(4) CHILDREN RECEIVING A SURVIVOR BENEFIT		
Receiving at June 30, 1978	None	

MINNESOTA STATE RETIREMENT SYSTEM
GENERAL PLAN
ANNUITANT STATEMENT AT JUNE 30, 1978
Page 2

	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
(5) DEFERRED ANNUITANTS*		
Deferred as of June 20, 1977	519	\$1,116,185.22
New	<u>114</u>	<u>288,444.00</u>
	633	1,404,629.22
Began Receiving	<u>48</u>	<u>47,326.20</u>
	585	1,357,303.02
Adjustments (Withdrawals)	<u>5</u>	<u>96,709.65**</u>
Deferred as of June 30, 1978	580	\$1,260,593.37

AVERAGE AGE AT RETIREMENT OF NEW SERVICE ANNUITANTS

<u>FISCAL YEAR ENDING</u>	<u>AVERAGE RETIREMENT AGE</u>
6/30/73	65.9 yrs.
6/30/74	65.4 yrs.
6/30/75	65.2 yrs.
6/30/76	64.9 yrs.
6/30/77	64.1 yrs.
6/30/78	64.0 yrs.

AVERAGE AGE AT RETIREMENT OF ALL EXISTING SERVICE ANNUITANTS

65.4 yrs.

* Deferred Annuities refers to those inactive members who have a vested right to receive an annuity at some later date. The Deferred Annuitants listed in report prior to fiscal year 1977 were those that were inactive with vested rights at the time they began receiving their annuities. These people are reported with the Service Retirement Annuitants this year.

** The large adjustment in the value of the annuity payable to deferred annuitants was due primarily to the change in the percentage factor for augmentation from 5% to 3%.

CORRECTIONAL RETIREMENT PLAN
COVERED EMPLOYEE STATEMENT
FISCAL YEAR 1978
As Required by Minnesota Statutes, Chapter 356

	<u>Number</u>	<u>Annualized Payroll</u>
Active at July 1, 1977	932	\$12,399,809.96
New Entrants*	<u>174</u>	1,988,975.04
Total	1,106	
Less Separations from Active Service:		
Refund of Contributions*	104	1,054,705.60
Separation with Deferred Annuity	2	13,916.20
Separation with Neither Refundment or Deferred Annuity	11	95,222.40
Death	3	34,605.74
Disability Retirement	0	.00
Service Retirement	<u>17</u>	258,772.80
Total Separations	137	
Net Transfers To and From Other Plans	26	
Active at June 30, 1978	995	\$13,684,608.30

AVERAGE ENTRY AGE OF NEW EMPLOYEES

<u>For the Fiscal Year Ending</u>	<u>Male</u>	<u>Female</u>	<u>Average of Total</u>
6/30/75	29 yrs. 5 mos.	29 yrs. 7 mos.	29 yrs. 5 mos.
6/30/76	27 yrs. 0 mo.	25 yrs. 6 mos.	26 yrs. 9 mos.
6/30/77	29 yrs. 2 mos.	28 yrs. 6 mos.	27 yrs. 5 mos.
6/30/78	29 yrs. 1 mo.	30 yrs. 0 mo.	29 yrs. 2 mos.

Average age at entry in State Service for all active employees at 6/30/78

<u>Male</u>	<u>Female</u>	<u>Total</u>
28 yrs. 2 mos.	29 yrs. 1 mo.	28 yrs. 3 mos.

*Includes new and separated same year.

CORRECTIONAL RETIREMENT PLAN
 ANNUITANT STATEMENT AT JUNE 30, 1978
As Required by Minnesota Statutes, Chapter 356

	<u>Number</u>	<u>Annual Annuity Benefit Payable</u>
(1) SERVICE RETIREMENT ANNUITANTS		
Receiving at June 30, 1977	197	\$ 902,549.40
New	16	100,682.64
	<u>213</u>	<u>1,003,232.04</u>
Deaths	2	10,922.28
	<u>211</u>	<u>992,309.78</u>
Adjustments-Net Results	0	17,104.80
Receiving at June 30, 1978	211	975,204.96
(2) DISABLED EMPLOYEES		
Receiving at June 30, 1977	3	6,044.28
New	0	.00
	<u>3</u>	<u>6,044.28</u>
Deaths	0	.00
	<u>3</u>	<u>6,044.28</u>
Adjustments-Net Results	0	241.80
Receiving at June 30, 1978	3	6,286.08
(3) WIDOWS RECEIVING AN ANNUITY OR SURVIVOR BENEFIT		
A. Beneficiaries Receiving an Optional or Reversionary Annuity		
Receiving at June 30, 1977	1	2,446.68
New	1	4,517.52
	<u>2</u>	<u>6,964.20</u>
Adjustments-Net Results	0	97.92
Receiving at June 30, 1978	2	7,062.12
(4) CHILDREN RECEIVING A SURVIVOR BENEFIT	None	
(5) DEFERRED ANNUITANTS		
Deferred as of June 30, 1977	1	4,787.76
New	2	12,096.00
Deferred as of June 30, 1978	3	16,883.76

AVERAGE AGE AT RETIREMENT

New Service Annuitants
Fiscal Year Ending

6/30/75
 6/30/76
 6/30/77
 6/30/78

Average Retirement Age

60 yrs. 4 mos.
 58 yrs. 9 mos.
 57 yrs. 1 mo.
 56 yrs. 6 mos.

All Existing Service Annuitants

59 yrs. 4 mos.

Section 356.215, Subdivision 4 of the Minnesota Statutes requires an analysis of the increase or decrease in the Unfunded Supplemental Present Value that occurred since the last valuation. This exhibit is shown on the following page.

MINNESOTA STATE RETIREMENT SYSTEM

EXHIBIT REQUIRED BY MINNESOTA STATUTES, CHAPTER 356,
SECTION 356.215, SUBDIVISION 4
FISCAL YEAR ENDING JUNE 30, 1978

1.	Unfunded Supplemental Present Value June 30, 1977		\$163,602,547
2.	Change due to current rate of funding and interest requirement:		
	(a) 1977-78 Past Service Contribution	\$14,844,412	
	(b) 5% interest requirement	<u>8,180,127</u>	- 6,664,285
3.	Change due to actuarial gains (-) or losses (+) because of 1977-78 experience deviations from expected:		
	(a) Mortality of Retired Persons	+ 488,895	
	(b) Excess interest earnings	- 3,731,727	
	(c) Recognized Unrealized Appreciation	+ 289,409	
	(d) Withdrawals	- 2,645,074	
	(e) Age and Service retirements	+ 1,233,126	
	(f) Disability retirements	- 415,233	
	(g) Deaths in active service	- 883,625	
	(h) Salary increases*	<u>+37,095,291</u>	+ 31,431,062
4.	Change due to 1977-78 entrants		- 2,999,326
5.	Change due to new EANC rates		+ 1,401,500
6.	Unfunded Supplemental Present Value June 30, 1978		\$186,771,498

* Balancing item

SCHEDULE 1

Male General Members

Probabilities of Separation From Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	2,400	6		
21	2,250	6		
22	2,080	7		
23	1,920	7		
24	1,760	7		
25	1,600	7		
26	1,470	7		
27	1,340	7		
28	1,230	8		
29	1,130	8		
30	1,040	8	2	
31	950	9	2	
32	890	10	2	
33	830	11	2	
34	770	12	2	
35	720	13	2	
36	680	15	2	
37	640	16	2	
38	600	18	2	
39	560	20	2	
40	530	22	2	
41	500	25	2	
42	480	27	2	
43	460	29	2	
44	430	32	2	
45	410	35	2	
46	390	38	3	
47	370	41	4	
48	350	44	5	
49	340	48	6	

SCHEDULE 1

Male General Members

Probabilities of Separation From Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
50	320	52	7	
51	300	57	8	
52	280	63	10	
53	260	70	12	
54	240	77	14	
55	210	85	17	
56	170	93	20	
57	140	102	23	
58	90	111	28	30
59	40	120	33	30
60		130	38	40
61		140	45	150
62		150	55	150
63		160	68	250
64		170	87	1,350
65				10,000

SCHEDULE 2

Female General Members

Probabilities of Separation From Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	3,700	1		
21	3,550	2		
22	3,390	2		
23	3,230	2		
24	3,070	3		
25	2,910	3		
26	2,750	4		
27	2,600	4		
28	2,430	4		
29	2,270	4		
30	2,120	4		
31	1,970	4		
32	1,820	4		
33	1,680	4		
34	1,540	4		
35	1,410	4	1	
36	1,300	5	1	
37	1,190	5	1	
38	1,090	6	1	
39	1,000	7	2	
40	920	8	2	
41	850	8	2	
42	780	9	3	
43	720	11	3	
44	680	13	3	
45	630	15	3	
46	590	17	4	
47	560	19	4	
48	530	21	4	
49	500	23	5	

SCHEDULE 2

Female General Members

Probabilities of Separation From Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
50	470	25	5	
51	440	27	6	
52	410	30	7	
53	390	33	8	
54	360	36	10	
55	330	39	12	
56	290	43	15	
57	230	47	18	
58	170	51	22	50
59	90	56	26	50
60		61	31	150
61		66	37	150
62		72	44	200
63		78	52	350
64		83	61	1,100
65				10,000

SCHEDULE 3

Male Correctional Members

Probabilities of Separation From Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	2,400	6		
21	2,250	6		
22	2,080	7		
23	1,920	7		
24	1,760	7		
25	1,600	7		
26	1,470	7		
27	1,340	7		
28	1,230	8		
29	1,130	8		
30	1,040	8	2	
31	950	9	2	
32	890	10	2	
33	830	11	2	
34	770	12	2	
35	720	13	2	
36	680	15	2	
37	640	16	2	
38	600	18	2	
39	560	20	2	
40	530	22	2	
41	500	25	2	
42	480	27	2	
43	460	29	2	
44	430	32	2	
45	410	35	2	
46	390	38	3	
47	370	41	4	
48	350	44	5	
49	340	48	6	

SCHEDULE 3

Male Correctional Members

Probabilities of Separation From Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
50	320	52	7	
51	300	57	8	
52	280	63	10	
53	260	70	12	
54	240	77	14	
55				10,000

SCHEDULE 4

Female Correctional Members

Probabilities of Separation From Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
20	3,700	1		
21	3,550	2		
22	3,390	2		
23	3,230	2		
24	3,070	3		
25	2,910	3		
26	2,750	4		
27	2,600	4		
28	2,430	4		
29	2,270	4		
30	2,120	4		
31	1,970	4		
32	1,820	4		
33	1,680	4		
34	1,540	4		
35	1,410	4	1	
36	1,300	5	1	
37	1,190	5	1	
38	1,090	6	1	
39	1,000	7	2	
40	920	8	2	
41	850	8	2	
42	780	9	3	
43	720	11	3	
44	680	13	3	
45	630	15	3	
46	590	17	4	
47	560	19	4	
48	530	21	4	
49	500	23	5	

SCHEDULE 4

Female Correctional Members

Probabilities of Separation From Active Service

(Number Separating at Each Age Per 10,000 Working at That Age)

<u>Age</u>	<u>Withdrawal</u>	<u>Death</u>	<u>Disability</u>	<u>Age and Service Retirement</u>
50	470	25	5	
51	440	27	6	
52	410	30	7	
53	390	33	8	
54	360	36	10	
55				10,000

MINNESOTA STATE RETIREMENT SYSTEM

SUMMARY OF MAJOR PLAN PROVISIONS

GENERAL EMPLOYEES

1. COVERAGE

From the first day of employment

2. AVERAGE SALARY

Monthly average for the highest 5 successive years of salary

3. SERVICE RETIREMENT

A. Eligibility for normal retirement with the full benefit amount:

age 65 with 10 years of service
or age 62 with 30 years of service

B. Full benefit amount:

1% of average salary for each of the
first 10 years of service plus 1-1/2%
of average salary for each year of
service thereafter

C. Eligibility for early retirement with the reduced benefit amount:

age 58 with 20 years of service
or age 62 with 10 years of service

D. Reduced benefit amount:

Full benefit amount reduced by 1/2 of 1%
for each month under age 65 (or age 62 if
30 years of service have been completed)

E. Form of payment:

Monthly single life annuity with return on
death of any balance of contributions over
aggregate monthly payments. (Actuarially
equivalent options also available.)

4. DISABILITY RETIREMENT

A. Eligibility:

10 years of service
or age 50 and 5 years of service

B. Benefit Amount:

1% of average salary for each of the
first 10 years of service plus 1-1/2%
of average salary for each year of service thereafter

5. DEFERRED SERVICE RETIREMENT

If employment has terminated after 10 years of service but contributions were left on deposit, service retirement will be granted according to the service retirement rules in effect at termination except that the amount will be increased for each year between termination and retirement by 5% for years prior to January 1, 1981 and 3% compounded annually thereafter. If death occurs prior to deferred retirement member contributions will be returned with 3-1/2% compound interest.

6. RETURN OF CONTRIBUTIONS

In lieu of all other benefits under the plan a member may elect the return of contributions upon termination of employment with contributions made after 3 years of service receiving 3-1/2% compound interest.

7. SURVIVING SPOUSE DEATH BENEFIT

A. Eligibility:

Death of member in service who is otherwise qualified at that time for service retirement

B. Benefit Amount:

The surviving spouse may elect one of:

1. refund of member contributions with 3-1/2% compound interest
2. 50% joint and survivor annuity to which the member would otherwise have been entitled

8. LUMP SUM DEATH BENEFIT

The surviving spouse of member who died in service but who does not qualify for the Surviving Spouse Death Benefit is entitled to a return of the member's contribution with 3-1/2% compound interest.

9. POST-RETIREMENT INCREASES

In January of each year, if the retirement fund value exceeds the retired reserve by 2% or more, retired benefits will be increased in the same proportion. Similarly, should the fund be less than the reserve by 2% or more, retired benefits will be decreased in the same proportion but in no case will the benefit be decreased below the original benefit granted at retirement.

10. CONTRIBUTIONS

- A. Employees contribute 4% of salary
- B. The State of Minnesota contributes 6% of salary

CORRECTIONAL EMPLOYEES

As above, except:

- 1. Eligible to retire age 55 and 10 years service.
- 2. Additional retirement benefit payable for 84 months or attainment of age 65, if sooner, equal to 1-1/2% each of first 10 years plus 1% each of next 10 years plus 1/2% each year thereafter. The total benefit paid during this period subject to 75% maximum.

The benefit payable after the above period shall not be less than that which when added to the social security benefit shall equal the benefit payable during the period.

- 3. Employees contribute 6% and State contributes 14%.